

AMENDMENTS TO THE CLAIMS

Listing of the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Presently Amended) An axially restrained-shrunk catheter balloon comprising an axially oriented polymer.
2. (Original) The catheter balloon of claim 1 wherein the balloon is a compliant or semi-compliant catheter balloon.
3. (Original) The catheter balloon of claim 1 having a predetermined compliance curve that is attained at least in part by the axially restrained shrinkage of the balloon.
4. (Original) The catheter balloon of claim 3 wherein the predetermined compliance is a non-linear compliance curve.
5. (Original) The catheter balloon of claim 1 wherein the balloon comprises a crosslinked polymer or a polymer with shrink memory.
6. (Presently Amended) The catheter balloon of claim [[4]] \leq wherein the crosslinked polymer is crosslinked with a chemical crosslinker or wherein the crosslinked polymer is crosslinked using radiation.
7. (Presently Amended) The catheter balloon of claim [[4]] \leq wherein the polymer with shrink memory comprises a stretch-oriented polymer.
8. (Original) The catheter balloon of claim 1 wherein the balloon is further coupled to a tubular element.
9. (Original) The catheter balloon of claim 8 wherein the balloon is welded to the tubular element.

10. (Original) The catheter balloon of claim 8 wherein the balloon has a balloon outer diameter and wherein the tubular element has a tubular element outer diameter, and wherein the balloon outer diameter and the tubular element outer diameter are the same.

11. (Presently Amended) A shrunk catheter balloon having a predetermined compliance curve that is attained at least in part by axially restrained shrinkage of the a catheter balloon; to form a shrunk catheter balloon having a wall thickness that is less than the wall thickness of the polymer tube from which the catheter balloon is formed.

12. (Cancel)

13. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the compliance curve is a non-linear compliance curve.

14. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the compliance curve has a reduced increase of diameter in a range of 14 atm to 20 atm as compared to a comparable catheter balloon that is produced without axially restrained shrinkage.

15. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the balloon is a compliant or semi-compliant catheter balloon.

16. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the balloon has an axial front end and an axial back end, and wherein axial restrained shrinkage is achieved by maintaining a distance between the front end and back end relative to each other.

17. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the balloon has an axial front end and an axial back end, and wherein axial restrained shrinkage is achieved by increasing a distance between the front end and back end relative to each other.

18. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the balloon comprises comprising a crosslinked polymer or a polymer with shrink memory.

19. (Presently Amended) The shrunk catheter balloon of claim 11 wherein the shrunk catheter balloon is coupled to a wire-guided catheter.

20-34. (Cancelled)

35. (Presently Amended) A catheter comprising the catheter balloon of claim 1, wherein the catheter has an outer lumen diameter and wherein the catheter balloon has an outer diameter that is equal to or less than that the catheter outer lumen diameter.

36. (Presently Amended) A catheter comprising the shrunk catheter balloon of claim 11, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or less than that the catheter outer lumen diameter.

37. (Previously Presented) A catheter comprising the catheter balloon of claim 1, wherein the catheter has an outer lumen of a given diameter and wherein the catheter balloon has an outer diameter that is equal to or greater than the catheter outer lumen diameter.

38. (Presently Amended) A catheter comprising the shrunk catheter balloon of claim 11, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or greater than the catheter outer lumen diameter.

39. (Presently Amended) A shrunk catheter balloon produced by a process comprising:

providing a polymer material formed into a tube;

axially stretching the tube;

forming a balloon from a the polymer material, and

heating the balloon while axially restraining axial contraction in a controlled manner and thereby radially shrinking the balloon.

40. (Previously Presented) A catheter comprising the shrunk catheter balloon of claim 39, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or less than the catheter outer lumen diameter.

41. (Presently Amended) A catheter comprising the shrunk catheter balloon of claim 39, wherein the catheter has an outer lumen diameter and wherein the shrunk catheter balloon has an outer diameter that is equal to or greater than the catheter outer lumen diameter.

42. (Previously Presented) A catheter comprising a catheter balloon according to claim 1, wherein the restrained-shrink balloon has a reduced profile and the reduced profile is obtained without requiring the wrapping of the shrunk catheter balloon element about itself.

43. (Presently Amended) A catheter comprising a shrunk catheter balloon according to claim 11, wherein the restrained-shrink-shrunk catheter balloon has a reduced profile and the reduced profile is obtained without requiring the wrapping of the shrunk catheter balloon element about itself.

44. (Presently Amended) A catheter comprising a shrunk catheter balloon according to claim 39, wherein the restrained-shrink-shrunk catheter balloon has a reduced profile and the reduced profile is obtained without requiring the wrapping of the shrunk catheter balloon element about itself.

45. (Previously Presented) The catheter balloon of claim 1, having a reduced profile and comprising an expandable portion and a less expandable portion.

46. (Previously Presented) The catheter balloon of claim 45, wherein the expandable portion is between two less expandable portions.

47. (Previously Presented) The catheter balloon of claim 1, wherein an outer diameter of an expandable portion is a value between an outer diameter of a corresponding unshrunken balloon and an outer diameter of the tube from which it is formed.

48. (Previously Presented) The catheter balloon of claim 45, joined to a catheter to comprise a medical dilatation device.